

SANITARY PROT. Assoc. xxx

NEWPORT
SANITARY PROTECTION ASSOCIATION.

REPORT

OF COMMITTEE ON GARBAGE AND HOUSE OFFAL,
DUMPING IN THE SEA, OFF THE HARBOR;
THE EFFECTS ON SHELL AND FOOD
FISHES, LOBSTERS, &C.



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NEWPORT
SANITARY PROTECTION ASSOCIATION.

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Honorary Counsel :

HON. SAMUEL R. HONEY.

* 128 Mill Street, Newport, R. I., to whom all communications should be addressed.

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OF COMMITTEE ON GARBAGE AND HOUSE OFFAL,
DUMPING IN THE SEA, OFF THE HARBOR;
THE EFFECTS ON SHELL AND FOOD
FISHES, LOBSTERS, &C.

SUMMARIZED FROM THE ANSWERS TO A SERIES OF QUESTIONS;
INCLUDING THE EVIDENCE OF LOCAL FISHERMEN, PUBLIC
OFFICIALS AND SANITARIANS HERE AND ELSEWHERE.

COMMITTEE :

J. J. VAN ALEN, *Chairman.*

CHARLES E. MUNROE.

CHARLES A. SIEGFRIED, *Secretary.*

SEPT. 14, 1891.



PREFACE.

The immediate cause of the question in the Association, and of this report, was the action of the city authorities, during the present summer, in commencing the dumping of garbage in the sea off the harbor, the nuisances attendant on transport to and loading on boats at a wharf in the center of the harbor, the fear of injury to fishing and other industries, shore pollution, and the snarl which the negotiations for a garbage crematory had gotten into.

It is not presumed that the matter here presented is final, yet so far as came within the powers and opportunities of the Committee, the Report is believed to embody fairly accurately the present general belief on the subject; a position certainly safe on sanitary and economic grounds, and one held by nearly all the chiefs of the Health Boards of the cities of the Union, and officials connected with fishing interests.

REPORT.

The committee began by sending to fishermen in this vicinity, to chairmen of health boards in other cities, and to public officials, the accompanying explanatory circular and postal card, with a series of questions. From these answers the basis of our report was formed, but much valuable information was given us by longer letters, and we hereby beg to return grateful thanks for the aid thus freely given.

The committee was appointed at a meeting of the Association on July 20th and reported on September 14, 1891, as follows:—

The committee not wishing to delay their report any longer, beg leave to offer the following. We have waited some time for important communications from sanitarians, promised, but in the summer months it is difficult to get hold of men. A later report will be given if the matter expected from these sources justifies it or adds anything to our present knowledge of the subject. From Boston we are informed that the Health Board are making observations on this same subject and will send us the same when completed. They are dumping garbage off their harbor and at greater distances, yet complaints of shore pollution constantly spring up, and the whole subject of garbage disposal remains to plague and perplex the authorities.

The term garbage is here meant to include kitchen refuse matter only; portions of food left over and unfit for further

use, and slops therefrom; breads and cakes, vegetables, meats, bones, cheese, coffee grounds, tea leaves, rinds and seeds of fruits, and all such remnants and remains of our food stuffs that cannot be of service again in our ordinary domestic economy. This material is stored in receptacles at back doors, and within a few hours in summer, becomes a sodden, offensive mass, and is in a state of fermentation and putrefaction. It is collected usually four times weekly, and transported in poorly devised and offensively odorous wooden box carts, during the day, to the city wharf, in the centre of the busy, populous harbor, where it is loaded on a vessel, which daily, or every other day, proceeds outside the harbor, and is supposed to dump it on a beginning ebb tide.

The number of replies we have received is about (25) twenty-five. Some were unsigned and are evidently based on but little observation and experience; hence are of questionable value to us. The great majority of the answers to our requests for information on the five principal questions, believe that garbage, as commonly deposited in the sea, here and at other seaports, is not a food for fishes that come to our markets, this class preferring undisturbed their usually clear and clean waters and their normal or usual food. Scavengers such as sharks and dog-fish seem to be attracted by the practice. It is remarked by some of the correspondents that crustaceans, after some time, when further changes have occurred in the material that has sunk to the bottom, will consume it. This is probably a correct observation, and denied by few. One of our local practical fishermen, corroborating the wide experience of the fish commissioner of the state of New York, says it gives shell-fish and lobsters a strong taste — that is feeding on garbage and refuse,— another says "lobsters will not go into the pots." Many assert that the practice of *garbage dumping* "spoils fishing grounds," and that "it damages fishermen."

School fish, or those going about in great masses, such as menhaden, herring, and mackerel, avoid garbage or offal

of any description (see the laws and petitions on this subject in the appendix, one from Block Island fishermen), they preferring clean waters; and as these fish are in turn food for larger varieties, many of our food fishes will thus avoid such waters. Bass and other game fish, that is, such as furnish sport by hook and line, are easily turned aside by any pollution of their waters; so that it is found that they disappear from localities where the practice of garbage dumping is followed.

It must be borne in mind that there is as yet no literature on this subject, and much laborious and painstaking investigation remains to be done regarding the whole matter, and out of the testimony and observations available at the present time, some may in time prove baseless; but, it is reasonably certain that the inhabitants of the sea are just as nice in their tastes and choice of food as the generality of land animals are; that they will not as a rule touch such material as rotting and fermenting house offal and garbage, preferring their usual *live food*, in clean uncontaminated water. Nor can they breathe as well in the areas of cloudy waters following the dumping and sinking of the stuff,—finely diffused particles choking up their gills,—and probably also some difficulty in respiration, resulting from the alteration in quality and amount of the oxygen present in the water. Scavengers such as sharks, dog-fish (and sturgeon, large cat-fish, &c., in fresh waters), are the exception, but these are not considered to be food for man, any more than are vultures, hyenas, and similar land scavengers, rats, &c. The mass which is dumped in the sea, and which composes this city's garbage refuse, is a loathsome material, a mixed animal and vegetable repelling stuff, fermenting, acid, greasy, and in a state of putrefaction. Animal life or organic well being is unquestionably injured by its consumption, if not by its presence in the medium in which they live, without much if any exception.

As a rule fish live upon each other, broadly speaking, (and most species are predaceous) and on lower animal life,

so that as we go down the scale of animal life in the sea, we finally observe that even the jelly fishes enfold other simple celled masses of transparent "jelly," the lowest visible water forms of sea life. Such is their habit, the larger on the smaller, even adults of the same species consuming the smaller ones. The amount of food of a vegetable character used by them is very small indeed. They roam about sea-plant life, in some instances, mainly for the smaller forms of lower animal life found in and around such plants. Sea water swarms with minute unicellular and infusorial forms of life, and these compose the vast food supply for countless millions, from the lowest types and species to well up in the scale, where we finally find a fully grown adult fish, equipped with powerful muscles and spinal column, and jaws armed with sharp teeth, preying upon another by direct attack.

Thus, from the evidence we have been able to collect, and from our correspondents, who have so generously aided us, your committee believe that the position taken by the Association is based upon good grounds, and we are able to formulate the following propositions.

1. Garbage cannot be considered as food for our edible fishes.
2. It does not attract food fishes; it repels desirable varieties.
3. It spoils fishing grounds.
4. When consumed by lobsters it spoils their flavor.
5. It destroys shell-fish beds.
6. On the other hand it is liable at any time, and unexpectedly, to return to shore, and pollute beaches.

The president of the Fish Commission of the state of New York, one of the most experienced men in this matter in this country, Mr. Eugene Blackford, says in his letter, with no uncertain sound, that *his experience proves* that fisheries, and shell-fish beds, are destroyed by garbage dumping in a short time, that lobsters and crabs are similarly affected. By his direction an inspector guards regions

of fisheries and shell-fish beds, in the vicinity of New York, with the result that with the cessation of garbage dumping, these valuable interests, which had been ruined, are now reviving. The appendix contains copies of a number of laws of foreign states, on this matter; in relation to the herring fisheries mainly, such deposits in the sea keeping away those fish from coasts, and causing widespread disaster to the fishing populations in consequence.

It is proved that garbage will return and foul beaches, unless taken a long distance out and dumped with a *beginning* ebb tide, and even then it will occasionally be found upon the shore again. The occasions when the floating material is found unexpectedly on neighboring shores, are due to the occurrence of unusual currents and winds, and such occasions are not unknown in this locality. Our neighbors stand ready with injunctions the moment the next fouling of their beaches occurs, and the city may at any time be compelled to seek another plan of garbage disposal all unprepared. It is not always practicable to carry this city's garbage far out to sea, for obvious reasons—storms lasting several days not unfrequently—and after all, this method is not real disposal of it, quoting the language of the editor of the *Sanitarian*, Dr. Bell.

The farther consideration of beach pollution, the scums and material floating about on the surface, the wide areas of contaminated water below the surface, caused by sinking matter; and the avoidance of such localities by sailing and fishing parties; these are all well known and are not subjects especially in your committee's province. To say that the amount of garbage dumped by the city is so small as to make no difference one way or another, is an easy way of begging the question, yet we do know that the effects of the practice are cumulative, and in time will be apparent to every one. That the popular opinion is averse to the practice is generally conceded; that people concerned with fishing, boating, and the interests commonly of these waters, are, as a rule opposed to it, is equally plain. That it is a

poorly performed and offensive method (as now done), and that it is not economical nor the best method for this city to follow, your committee believe is pretty generally felt to be the case now.

Appended will be found the forms (questions and circul-
lars), and the methods of procedure. We are disappointed
in not being able to offer more in this report, the time being
somewhat limited, and the summer vacation months being
probably the main causes of any deficiencies in this respect.
Private correspondence was also carried on and some infor-
mation gained in that way, besides much intercourse with
watermen, fishermen and others familiar with these waters.
Personal inspection, so far as was possible, was not omitted.
The field is a large one and just attracting workers. Besides,
the subject enters deeply into natural science studies, the
habits and food of fishes and lower forms of sea life, and
kindred matters, all requiring much time and careful labor,
and unusual facilities. Appended will also be found copies
of very interesting old colony laws, showing that even as
far back as 1668, it was considered a harmful practice to
throw offal overboard on fishing grounds. Also extracts
from Fisheries Laws of Great Britain and Canada to the
same effect (kindly contributed by Mr. Almon and Dr.
Storer). So, from many sources, and with few contrary
indications, we find that the practice of garbage dumping
in the sea, and especially near populous seaport towns, is
wrong both in principle and fact, and for the reasons we
have striven to show above. These reasons and conclusions
refer to all sides of the question, and include the economical
and best interests of this community we believe, and call
for a speedy change in methods; they indicate plainly a
trial of the plan by cremation or destruction as heretofore
recommended by this Association.

The only conditions that permit of garbage dumping in
the sea are: the open sea, as far out as possible; a begin-
ning ebb tide; away from shallows, beaches, and fishing
grounds; and a due regard to winds and currents. Under

these conditions, *invariably observed*, and with the present quantity (daily average not over 15-16 cubic yards) the damage to be apprehended to the various interests concerned, would probably be minimized. This does not take into account the nuisances incident to the handling and transport of the material before it reaches the dumping grounds. With it all, it must be borne in mind that injunctions are always imminent because of unlooked for deposits on beaches; and, the impracticability of proceeding to sea at all times because of unusual stress of weather.

Coming now to the question of cremation or destruction of garbage, it may be said that up till quite recent years, the method has not been satisfactory as a whole, and principally because the appliance would not carry out its promise. But there is good and sufficient reason to look upon this problem as now solved, and cremators are now in satisfactory operation in many municipalities both here and abroad. At the International Hygiene Congress at London, Mr. Charles Jones, an engineer of note, stated that the problem of refuse destruction by cremation was solved, describing also the form of construction, in which the gases and vapors being completely consumed, no nuisance resulted. There are in this country more than twenty (20) cities and towns using cremators of one form of construction, and it is asserted, by responsible parties, successfully and satisfactorily. There are also other companies equally willing to construct cremators for garbage and refuse destruction, and including sewage and dead animals; without payment if they do not prove efficient. Surely it would seem as if cremation of garbage had gotten beyond the experimental stage, and were not impossible of accomplishment here.

Sewage, or organic waste matter, has a distinct value as a land fertilizer, and applied as is now done at Croydon, England, on the principles introduced there by Dr. Alfred Carpenter, is a benefit. It provides increased food supplies, and avoids pollution of river and water courses. There is however no profit derived from the Croydon sewage farms,

as the tax rate is increased twopence to make up the balance of cost. Berlin and Paris sent their experts to Croydon, and have adopted that plan of sewage farming. But it is otherwise with the material we know as garbage. It cannot be applied to the land similarly, for the reason that its composition is radically different. But there is a profit to be gotten from it otherwise. The city of Providence in this state (and Cincinnati, Ohio) disposes of much, or all of its garbage to a company, who at first extract the grease, and by desiccating and grinding up the remainder, find a ready sale for the product as fertilizer. It is questionable whether the amount of material in this city would justify such an industry here. In a previous report by this committee, it was shown how unwholesome garbage (as commonly collected in cities) is, as a food for animals; how distinctly deleterious it is applied to the land; and how great the nuisances have been in the past from the trailing carts on their way to and from the city, and at all hours, on our streets and driveways.

There is a manner of disposal that would solve the problem easily enough, and one not at all difficult of application. It is that each householder destroy his own garbage in his, or her, own domestic fires. This can readily be done, and if systematically carried out, is surprisingly easy and effectual. But this seems to be impossible in our ordinary wasteful domestic kitchen economy. It would imply care and some management, separation, and prompt destruction in the fire from time to time, not allowing of any accumulation. There are also manufactured special contrivances to attach to large ranges—"garbage destructors"—answering the purpose very well. All large establishments where fires are continually kept up, should have no difficulty in making way with garbage or refuse of any description; and it is now done so in many places. When we arrive at the careful and economical management of our kitchens in this country, common on the continent of Europe; and, when our era of waste and often unnecessary extravagance shall

have passed away, we will probably hear less of garbage, and of the receptacles at our back doors, and of the slowly trailing carts in the streets, all more or less reeking with the bacteria of fermentation and rot.

As, however, we are dealing with matters as we find them, your committee are forced around to the only really sanitary and effective method of disposal — in the proper sense of that word — and hence recommend for the city, cremation of its garbage.

REGARDING THE GARBAGE QUESTION ELSEWHERE.

NEW YORK. Bureau of street cleaning has entire charge of the work. Collected by city carts, loaded upon scows, towed to sea and dumped about the coast in vicinity of port. Chronic complaints, and from all sources. Neighboring towns and beaches trying to get redress by legal means.

PHILADELPHIA. Present system a failure from sanitary point of view. A number of small contractors remove it in an unsatisfactory manner. It is fed to hogs, mixed with manure, and buried in the soil in pits. "There is no longer any doubt as to the remedy for these multifarious nuisances. It is cremation. It is so done by an ever increasing number of cities both in this country and abroad, and satisfactorily. It has everything to recommend it. It is economical, prompt, efficient, inoffensive, and sweeps out of existence offensive nuisances which harass communities that employ old plans."

BROOKLYN. Same as New York.

ST. LOUIS. Existing methods objectionable. Collection and transportation to existing dumps, both on land and in the river, create nuisances and engender disease. The river dumps are dangerous, the garbage floating a short distance and lodging in greater or less quantity. "The subject of the disposition of garbage and refuse material is now receiving the attention and earnest consideration of sanitarians everywhere, and is one that should be taken into consideration by the authorities of the city. Of late years a number of cities have constructed crematories, furnaces and extractors, attended with varying success. Some aim at destruction by fire in the easiest manner; others, looking at the commercial value as well as the final disposition, claim to be able to dispose of them by inoffensive and sanitary methods, and at the same time utilize their products. We lack sufficient information (Report of 1890) to give a definite idea of the best method to be pursued without a personal inspection of the process in operation. Such observations should be made at once."

BOSTON. Costly and unsatisfactory method. Suggests destruction by each household and in the kitchen fires. The cost of garbage collection, transport, and dumping, is a hundred thousand dollars

annually. The expense grows with the growth of the city, and coincidentally the offenses attending storage in houses and yards, and the transportation of it in the streets. It is reported that the city is also dumping at sea, using much precaution with regard to distance out and tides.

BALTIMORE. Same complaints common to American cities, in storage, collection, and transport. The dumps a long distance. Dr. Chancellor, chairman of State Board of Health, writes of fisheries' destruction by refuse dumping in the waters (May '91 meeting of American Medical Association, Washington, D. C.).

CINCINNATI, OHIO. Has a contract with a desiccating company, for a period of ten years, receiving twenty-five hundred dollars annually for the privilege. This company removes all garbage and offal, animal and vegetable, including dead carcasses (paying additionally for these), at least three times per week, and from slaughter houses, daily. There must, however, be no mixing of ashes or other waste material with the garbage and offal.

(This contract indicates a profitable business. No details are at hand, but grease, and products of use, as fertilizing material, are probably the sources of profit. It would be useful to know if any offensive effluvia or nuisances exist with such works.—Committee.)

CLEVELAND. The usual complaints of inadequate service and many nuisances. Has no system or proper method. "A long delayed sanitary necessity remains unprovided for in this city, to wit: a satisfactory gathering of house garbage. No city of this size can be considered well taken care of which makes no public provision for this purpose. It is an old topic in the annual health reports, but must continue to be urged until some relief is obtained."

CHICAGO. Contract system generally. System is unsatisfactory, the difficulty being lack of dumping places. Some is put in "clay holes" near city, and some is cremated. Efforts are made to induce householders to consume it in kitchen stoves. "It will be necessary to set aside part of the annual appropriation (for '91) to pay for the destruction of garbage and refuse. A garbage reduction works will soon start in operation, and I trust (chairman Board of Health) this department can foster and encourage the only sanitary method. The reduction works are a private enterprise; they propose to destroy without expecting a profit from the product. The question will be simply at what cost per ton can garbage and refuse be destroyed. Fuel oil will generate the heat which is expected to reach 3800° F." (From Health Report, Chicago, 1890.)

LAWS AND OFFICIAL REPORTS BEARING ON THE SUBJECT.

The Rhode Island law passed at the instigation of citizens of Middletown to prevent any more of Newport's garbage coming to that town :

January Session 1887, Chapter 622.

**AN ACT TO PREVENT THE CARRYING OF SWILL AND OTHER OFFAL
INTO THE TOWN OF MIDDLETOWN AND FOR OTHER PURPOSES.**

It is enacted by the General Assembly as follows:

SECTION 1. No person shall hereafter carry any house offal or swill into the town of Middletown, or permit the swill or offal so carried to be fed to swine on his premises, or to be deposited on or spread upon his land in said town; but nothing in this act contained shall be construed to prevent the carrying of swill or house offal through the said town of Middletown to any other town. Any person violating any of the provisions of this act shall be for every offence fined not exceeding twenty dollars or be imprisoned not exceeding three months.

SEC. 2. All acts and parts of acts inconsistent herewith are hereby repealed.

SEC. 3. This act shall take effect from and after June 1st A. D. 1887.

OFFAL OF FISH.

Report of the U. S. Fish Commissioner for 1878. Washington, 1880, p. 36. Petition to U. S. Fish Commissioner from the Block Island fishermen.

"In cleansing fish at sea, when the offal is thrown overboard it sinks to the bottom and there decays. This putrid matter drives the fish away as long as it remains." If thrown over on the tideward side of the grounds, "it is swept slowly over the whole fishing grounds, poisoning them for the time throughout their entire extent."

Reports on the fisheries of the Great Lakes. U. S. Fish Commissioner's Report (1872-3), Washington, 1874, p. 19, Milner.

"It is the uniform testimony of all fishermen that throwing offal or dead fish in the vicinity of the fishing grounds is offensive to the white fish, and drives them away."

Annual Report Department of Fisheries, Dominion of Canada (1889), Ottawa, 1890; part iv, Report of Commissioner upon the Herring Fishing Industry of Great Britain and Holland, page 62.

"Throwing offal or refuse of herring into the sea in the neighborhood of the fishing grounds is a reprehensible practice, certain to drive the herring away, as they appear to be very sensitive to offensive sights and smells. It appears that in Sweden this had something to do in scaring away the fish."

Mr. Mitchell says:—"Those vessels which, after getting the herring on board, throw the refuse into the sea, ought not to be permitted to fish where there are herring shoals; and this law ought to be enforced by the Dutch Government (whose fishing vessels cure on board) which might order that the portions taken out of the herrings at gutting be barrelled up for use, for the purpose of making oil, or for manure, or for both purposes.

"The quantity of herring fished in Sweden, prior to 1809, was about as great as that fished in Scotland, yet by allowing the refuse of the herring which had been boiled at places on the coast, for the purpose of obtaining the oil, to reach and taint the sea, the shoals left and did not return for sixty-nine years."

Mr. Mitchell further says:—"We are of opinion that any operation which tends to disturb or scare the herring may drive away or diminish the shoals, such as * * * throwing the refuse into the sea after gutting the herring, as is done by the Dutch busses, or allowing the refuse of the soil of the herring to go into the sea, as was done on the Swedish coast."

Annual Report Department Fisheries, Dominion of Canada, 1890. Ottawa, 1891, p. 70.

"Nothing whatever is said in the Regulations of 14th March, 1890, with reference to the prevention of fish offal being cast into any of the waters of British Columbia. This restriction, it is presumed, was considered unnecessary to be inserted in that Order in Council, as a clause referring to it is embodied in the General Fisheries act of 1886, where a penalty is imposed against any person who causes to be thrown, or deposits in any water where fishing is carried on, 'remains' or 'offal of fish.'

"The forbidding of throwing the remains or offal of fish *or any*

other deleterious matter into waters frequented by fish is not only the law of Canada, but of almost every other country. It is needless to dwell upon the *pernicious effects* which must result from this *civil practice*. The strongest evidence of this view of the matter is the stringent legislation in Britain and other European countries against the pollution of their waters from this cause."

INTERESTING OLD COLONY LAWS.

Laws of the Colony of New Plymouth, 1668.

"Wheras great complaint is made of great abuse by reason of fishermen that are strangers, who fishing on some of the fishing ground on our coast in Catches, dresing and splitting theire fish aboard through theire Garbidg overboard to the great anoyance of fish which hath and may prove greatly detrementall to the Countrey: It is ordered by the Court that something be directed from this Court to the Court of the Massachusetts to request them to take some effectuall course for the restraint of such abuse as much as may be."

Colony Laws of Massachusetts Bay, 1668.

"It is ordered by this Court and the authority thereof that no man shall henceforth (no fish to be killed when they go to spawn) nor shall any fisherman cast the garbage of the fish they catch overboard at or near the ledges or grounds where they take the fish; nor shall any of the boat's crew refuse or neglect to obey the order of the master of the vessel to which they belong for the times and seasons of fishing; nor shall they take or drink any more strong liquors than the master thinks meet to permit them: the breach of these three last being under the penalty of twenty shillings for the first offence; for the second forty shillings; for the third three months' imprisonment, one third part of the aforesaid fines to the informer proving the same."

[*Copy of Circular.*]

The Committee appointed by the Newport Sanitary Protection Association to report upon the methods for the disposal of the garbage of the city of Newport have been especially instructed to inquire into the effect produced upon the fishing industry by the casting of the garbage into the sea as is done at present.

We desire your assistance in drawing a report on this subject, and we beg that you will fill out the blanks on the enclosed postal card and forward by mail at your earliest convenience.

If you will give us your views upon this matter, at length, we shall esteem it highly.

J. J. VAN ALEN, Chairman.

CHARLES E. MUNROE.

C. A. SIEGFRIED, Secretary.

[*Copy of Questions on Postal Card.*]

THE DUMPING OF HOUSE OFFAL OR GARBAGE IN THE SEA.

1. Do fish (including all varieties crabs, &c.) consume it?
2. If so what effect, if any, does it have on them?
3. What effect on fishing grounds does garbage dumping have?
4. Does such dumping attract or repel fish from localities?
5. From a fisherman's point of view do you think it injurious or otherwise?

